



School of Pure and Applied Sciences
Physical Science

Instructor Information

Instructor: Marius Coman

Email: Use canvas' email

Course Information

Course: PHY 1020C, FUNDAMEN OF THE PHYSICAL WORLD (FUNDAMEN OF THE PHYSICAL WORLD)

Section Number: 800

Course Reference Number: 23838

Delivery Method: FSW Online

Campus: FSW On-Line

Credit Hours: 3 Credits - 2 Lecture Hours - 2 Lab Hours

Course Description: Fundamentals of the Physical World is designed to provide a broad foundation in physical concepts to non-science majors. It emphasizes how physicists approach the problem of describing nature in terms of physical theories and the importance of experimental tests. This course addresses topics in mechanics, heat energy, wave motion, light, electricity and magnetism, and includes elements of modern physics. This is a state designated general education core course in natural sciences.

Course Location

On-line

This course is delivered [online](#), does not meet in person.

Prerequisites/Co-requisites

Course Prerequisites: Demonstration of readiness for college-level computation and communication.

Topic Outline

Topic Outline:

- Physical theories and the scientific method
- Motion, force, work, energy, momentum, and conservation principles
- Heat as a form of energy, temperature, and basic thermal processes
- The interaction of light with matter and properties of light
- Electricity and magnetism
- Models of the atom and fundamentals of atomic physics

Student Learning Outcomes

All courses at Florida SouthWestern State College contribute to the General Education Program by meeting one or more of the following General Education Competencies:

Communicate clearly in a variety of modes and media.

Research and examine academic and non-academic information, resources, and evidence.

Evaluate and utilize mathematical principles, technology, scientific and quantitative data.

Analyze and create individual and collaborative works of art, literature, and performance.

Think critically about questions to yield meaning and value.

Investigate and engage in the transdisciplinary applications of research, learning, and knowledge.

Visualize and engage the world from different historical, social, religious, and cultural approaches.

Engage meanings of active citizenship in one's community, nation, and the world.

A. General Education Competencies and Course Outcomes

1. Listed here are the course outcomes/objectives assessed in this course which play an integral part in contributing to the student's general education along with the general education competency it supports.

General Education Competency: **Evaluate**

Course Outcomes or Objectives Supporting the General Education Competency Selected:

- Recognize and justify the importance of measurements in scientific studies
- Describe and analyze the concepts associated with motion, work, energy, momentum and use the conservation principles to investigate related phenomena.
- Investigate light's interaction with matter and use the observations to explain related phenomena in nature.
- Describe and investigate the interaction between electric charges.
- Explain the relationship between electric and magnetic phenomena.
- Outline the development of the atomic theory, and the supporting experimental evidence.
- Investigate wave formation/patterns and how they travel through space.

B. In accordance with Florida Statute 1007.25 concerning the state's general education core course requirements, this course meets the general education competencies for science.

- Students will demonstrate the ability to critically examine and evaluate scientific observation, hypothesis, or model construction, and to use the scientific method to explain the natural world.

- Students will successfully recognize and comprehend fundamental concepts, principles and processes about the natural world.

Academic Integrity Policy

At FSW, we believe in the power of honesty and integrity as the pillars of academic excellence. As part of our college community, it's crucial that you understand the importance of these values in your academic journey. All work submitted by students for credit in this course is required to adhere to [FSW's Academic Integrity Policy](#). This means cheating on coursework is unacceptable, will receive a "0" grade, and may be subject to disciplinary action. FSW faculty may use Turnitin, Packback, CheckGPT, or similar tools to evaluate coursework for plagiarism and/or artificial intelligence (AI) generated content.

Cheating or other academic misconduct can include, but is not limited to:

- Copying information from published or unpublished sources (online or in print) without citing those sources.
- Copying someone else's work or allowing someone else to copy yours.
- Submitting written work generated by AI as your own without direct authorization from your professor.
- Submitting work for credit that has already been submitted for credit in another class, even if you wrote it.
- Unethical distribution or use of exam content.

According to the [Academic Policies and Procedures section of the College Catalog](#), "Those in charge of academic tasks have an obligation to make known the standards and expectations of acceptable academic conduct. Each student has an obligation to know and understand those standards and expectations." As such, each student should review the policies and procedures outlined in the [Academic Integrity Policy](#) and expect that any violation of these policies will be subject to disciplinary action.

If you have any questions about these principles, reach out to your professor. They are here to help you succeed. Let's work together to maintain an honest, vibrant learning environment at FSW!

Institution Policies

Programs for Students with Disabilities

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of ADAptive Services at the nearest campus. The office locations and telephone numbers for each campus are located on the [Office of ADAptive Services website](#).

Reporting Title IX Violations

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct. Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at equity@fsw.edu. Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online. Additional information and resources can be found on the [College's website](#).

Financial Aid and Attendance Verification

Florida SouthWestern State College, in accordance with Federal Regulations, is responsible for verifying student attendance and engagement in classes before federal financial aid funds are distributed. In order to demonstrate both your attendance and engagement in this class, you will need to complete the attendance verification assignment within the first week of class. To complete the assignment, click on the "Attendance Verification" link on the Canvas course menu. Additional information and resources can be found on the College's Financial Aid website.

School Policies

Extra Credit: All extra credit opportunities offered in any School of Pure and Applied Science course must be offered equally to all students in the class, and cannot account for more than 5% of the overall course grade.

Course Assessment

This course will be assessed by a combination of class participation, graded homework assignments, module/unit quizzes/exams, graded labs, and/or a comprehensive final exam.

Requirements for Students

This course is delivered [online](#).

Live online will utilize Zoom to deliver class materials live and at a certain time each week.

Technology Requirements:

- laptop or desktop computer with an up-to-date OS;
- stable high speed internet;
- external webcam with microphone only for proctored exams.

Familiarize yourself with the Academic Integrity and Misconduct Policy at FSW:

<https://www.fsw.edu/communitystandards/academicintegrity>

Read also FSW Standards for Virtual Classrooms

<https://www.fsw.edu/online/standards>

Materials needed:

- **Meterstick or ruler**
- **1 Rubber, 1 ping pong, 1 tennis ball**

- **Food coloring**
- **small bb balls**
- **eggs, a partner...may need to throw eggs at**
- **\$1 rain poncho**

Attendance Policy

Submitting lab reports and quizzes by the due date is student's responsibility.

Grading Policy

The weight for exams, quizzes and lab reports/assignments is specified in the following table:

Assessment tool	Weight in %
3 Exams	30
16 Lab Reports	50
12 Quizzes	20
Total:	100

Your final grade is calculated as a weighted average:

$$\text{Final Grade} = \overline{\text{Exams}} \cdot 0.3 + \overline{\text{Lab Reports}} \cdot \frac{50}{100} + \overline{\text{Quizzes}} \cdot 0.2$$

$$\overline{\text{Exams}} = \frac{\text{Exam}_1 + \text{Exam}_2 + \text{Exam}_3}{3}$$

The following range will be used to determine your final course grade:

Grade Percent	Letter Grade
90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

Withdrawals: It is the student's responsibility to withdraw officially from any class that they cease to attend. Failure to do so will result in the recording of an "F" grade.

(Note: The "incomplete" grade ["I"] should be given only when unusual circumstances warrant. An "incomplete" is not a substitute for a "D," "F," or "W." Refer to the policy on "incomplete grades.")

LATE WORK POLICY:

Required Course Materials

Conceptual Physics

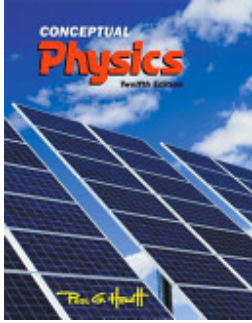
ISBN: 9780321909107

Authors: Paul G. Hewitt

Publisher: Addison-Wesley

Publication Date: 2014-01-06

Additional Information



Recommended

Visit the [FSW Bookstore](#) to find required course materials.

Additional Required Materials for FSW Online Courses

FSW Online courses (including online, live online, blended online, and flex modalities) also require the following materials:

- **External webcam** and microphone (to take proctored tests and/or final exams.)
- Laptop or desktop computer with an up-to-date operating system (see [Semester Start-Up Check-List](#) for details).
- Stable high-speed internet

As scrap paper is not authorized during online exams, it is recommended that students consider the following if authorized for use:

- Small, lap-sized, dry-erase board
- Dry erase marker(s)

Class Schedule

Week 1 Linear Motion

Experiment I. The Basics of Graphing Motion

Week 2

Newton's Laws of Motion

Experiment II. The Newtonian Shot - Force and Motion

Experiment III. The Weight - Mass and Weight

Week 3

Momentum

Experiment IV. Blowout!

Summary of Newton's Three Laws

Week 4

Energy

Exam 1

Experiment V. Egg Toss - Impact Time and Impact Force

Experiment VI. An Uphill Climb - Work on an Inclined Plane

Week 5

Gravity

Experiment VII. Dropping the Ball - Conservation of Energy During Free Fall

Week 6

The Atomic Nature of Matter

Experiment VIII. Thickness of a BB pancake – The size of an atom

Week 7

Temperature, Heat, and Expansion

Experiment IX. Temperature Mix - Specific Heat Capacity

Week 8

Heat Transfer

Experiment X. Spiked Water - Specific Heat Capacity

Experiment XI. Cooling by Boiling - Boiling Point

Week 9

Vibrations and Waves

Experiment XII. Slow-Motion Wobbler - Slowing Vibrations with a Strobe Light

Experiment XIII. Fork it over -Determination of the speed of sound

Week 10 Electrostatics and the Electric Current

Exam 2

Experiment XIV. Batteries and Bulbs - Electric Circuits
Experiment XV. The Lemon Electric - A Basic Battery
Experiment Ohm, Ohm on the Range - Meters and Resistance

Week 11

Magnetism, Electromagnetic Induction
Experiment XVII. Electromagnetism

Week 12

Properties of Light
Experiment XVI. Reflection and Refraction

Week 13

The Atomic Nucleus and Radioactivity

Week 14 Final Exam Wednesday, April 24, 12 PM-1:50 PM

Tutoring and Support Services

Academic Tutoring

FSW provides professional in-person and online tutoring through its [Tutoring Centers](#) located inside the campus library. Tutoring Centers consist of the Math Center, the Writing Center, and the Peer-Tutoring Center. In addition to on-campus tutoring services, the College provides all students 24/7 access to Tutor.com.

For additional help with this course, the student may:

1. Meet with the Professor during posted office hours.
2. [Seek On-Campus Assistance](#): Each Campus, as well as the Hendry/Glades Center, has at least one place where students can go for assistance with academics. All are available to each student, regardless of the location or type (on-campus, online, etc.) of the class.
3. [Request a tutor](#) from the Florida SouthWestern State College Peer Tutoring Center.
4. Use the Online 24/7 Tutoring Services (tutor.com). Look for the link in your Canvas course navigation menu.

5. Use the **FSW Math Tutorials** link located in Canvas for additional math resources (videos, links to resources, etc.) by topic.

BUCS Care Services

[Bucs Care Services](#) is focused on educating and informing the community through caring, advocacy, and supportive endeavors. FSW cares about our student's holistic development and wellness. We believe that for all students to be successful, support must be given on an emotional, social, physical, and intellectual basis.

Care Services include:

- [Wellness Hub](#) (Mindfulness@FSW)
- [Care Pantry](#)
- [Mental Health Services](#)
- [Public Health Resources](#)
- [Active Minds](#)
- [Homeless Student Resources](#)

If you feel you are struggling and need to speak with someone concerning personal issues, please do not hesitate to contact the Care Services office via email (bucscare@fsw.edu) or phone (239-489-9046) for community resources and group counseling.

All of these services are available to the student at no additional cost.

Any other information or class procedures or policies

Familiarize yourself with the Academic Integrity and Misconduct Policy at FSW:

<https://www.fsw.edu/communitystandards/academicintegrity>

Read also

FSW Standards for Virtual Classrooms

<https://www.fsw.edu/online/standards>

TECHNICAL DIFFICULTIES: Students who experience technical difficulties must contact the professor immediately and attach a screenshot of the issue. If technical problems continue with students' personal computers, it is their responsibility to contact technical support and/or use the computers available on Florida SouthWestern State College campuses to complete the assignments.

This Syllabus is subject to reasonable changes at the discretion of the professor. From time to time, this syllabus may need to be amended for pedagogical reasons, and the instructor will notify students via announcements or email of any changes, additions, and/or deletions to the syllabus.